

# **I N T E R N A T I O N A L PEST CONTROL**

Public Health ♦ Agriculture ♦ Horticulture ♦ Forestry ♦ Animal Health



**IGEBA - First choice fogging equipment**

Reprinted from International Pest Control, November/December 2013,  
Volume 55 Number 6

**IGEBA<sup>®</sup>** 

# IGEBA – First choice fogging equipment

For ages, human beings have suffered vector borne diseases and agriculture crop loss; due to attack by pests and other vermin that attack stored products, causing severe damage. In view of the increasing environmental difficulties, choosing the right pest control application technique, to protect the environment and public health, is becoming of greater importance.

Since 1982, has successfully contributed to the pest management industry by increasing the quality standards of fogging equipment. It all started over 30 years ago, in the small village of Weitnau, in the south of Germany. Four men, with a wealth of experience in pest control and plant protection, came together to develop, what would one day, be one of the leading brands of fogging equipment worldwide.

Equipped with the basic instruments of that time, drawing board, ruler and pen, they began putting their ideas on paper. Their firm intention of producing the best equipment on the market coupled with their innovative thinking and enthusiasm quickly bore fruits. The first unit,

the TF-30, presented only a couple of months after the company's beginning, was to become a large success and the years that followed brought new units at regular intervals, every one of them serving the growing and diverse needs of the customers.

Since then, what started with only four people has grown to twenty five. The first model (TF-30) and its successor, the TF-35, have become one of the most popular fogging machines worldwide. In 1989 the company started developing ULV Aerosol Generators, with the first unit being the U-20 HD M. Years later, this unit was replaced by the U-15 HD M, manufactured and tested in

accordance with WHO specifications on equipment for vector control.

Today, IGEBA is one of the most demanded brands when it comes to equipment for pest and vector control, agriculture and hygiene management. Having steadily expanded its share of the international market, IGEBA now sells fogging units to more than 100 countries worldwide. Credit for this growth is due to the service network of agents and customers who have regularly passed on their information and suggestions for improvement and have therewith contributed to a continuous development of the product range.

In order to sustainably meet customer demands, IGEBA has devel-

**Table 1. ULV treatment with IGEBA U 15 HD-M knockdown of *Aedes aegypti* at checkpoint located at 100 m (Field assessment of vehicle mounted ground spray equipment - model IGEBA U-15 HD M - carried out by the Vector Research Control Unit USM Malaysia).**

Output by 2 nozzles	Liquid	after 24 h
30 litres/ hr	Pesguard PS 102 (1:4)	66.7%
30 litres / hr	Aqua Resigen (1:10)	31.7%
20 litres / hr	Pesguard PS 102 (1:4)	90.0%
20 litres / hr	Aqua Resigen (1:10)	96.7%



**Laser measurement of droplet sizes of IGEBA U 5 M ULV Generator at NECE (Navy Entomology Centre of Excellence / USA)**

oped a company philosophy based on the three pillars; Quality, Innovation and Flexibility. As an example, the development of a revolutionary ignition system without spark plug for the TF-35 considerably improved the start-up characteristics of the thermal fog generator and led to a significant reduction in maintenance.

All IGEBA products have one thing in common: only high-quality materials are used and combined with the best compounds available. State of the art production facilities and a high quality of manufacturing 'Made in Germany' allowed the company to quickly react to the demands of the market. One of the best examples was the introduction of the TF-34, the smallest pulsejet Thermal Fog Generator on the market.

### Droplet Science – short introduction

Years of experience and the increasing complexity of the industry have enabled IGEBA to investigate the detailed aspects of space treatment. Through the close collaboration with renowned institutions like the International Pesticide Application Research Centre (IPARC, Imperial College, London, UK) and the Navy Entomology Centre of Excellence (NECE, USA) in the field of droplet size measurement, the company has worked hard to ensure their equipment delivers an optimal droplet spectrum.

Droplet science is a much more complex topic than some might think. From vapour to rain, droplets are around us every day. Why is delivering the right droplet size so decisive for successful space treatment, especially against vector borne diseases? And, with regard to

fogging, how is a fog defined? Where does it start - where does it end?

Literature defines the droplet spectrum for a fog to range between 10 and 50 micron. Depending on the applied carrier liquid (oil or water) the droplets should range between 5 and 30 micron VMD (Volume Median Diameter) for an effective thermal fog and ULV aerosol application. With the same equipment, a water based formulation will usually produce slightly larger droplets than an oil formulation. Droplets smaller than 5 µm typically do not contact an insect target due to evaporation and air turbulence caused by flight activity of the insects, while droplets larger than 30 µm do not remain airborne long enough to be effective.<sup>1</sup>

As an example, a droplet of 20 micron needs about 14 minutes to fall 10 m, whereas a droplet of 50 micron needs only about 2 minutes.<sup>2</sup>

Both IGEBA Thermal Foggers and ULV aerosol Generators will produce a certain range of droplet sizes, the main goal being to achieve the maximum number of droplets within the optimal droplet spectrum.

Table 1 shows that at a smaller output, the knockdown effect after 24 h was higher than at a higher output. This is due to the smaller droplets staying airborne for a longer period of time. In the end, several factors influence droplet size and effectiveness including carrier liquid, spray concentration, flow rate and external factors such as wind speed and temperature, will always affect the droplet distribution.

Both carrier liquids, oil and water, have advantages and disadvantages.



Fogging of oil-based solution with IGEBA TF35

**Table 2: Insecticidal efficacy of DETMOL-VAP (based on 248g/l Vapothrin and 52 g/l Pyrethrum extract 25%), applied with and without fog additive NEBOL using an IGEBA UNIPRO 5 Cold Fog Generator in 670 m³ test rooms, against adult male Oriental cockroaches, *Blatta orientalis*. The results show, the effectiveness of the water-based chemical is considerably increased by adding the fog enhancer NEBOL. (method: BioG B 104-03 (modified) Study: Mo4604)**

Conditions	mean % of knock down and / or mortality after 6 hrs, 24 hrs and 48 hrs (range of 4 positions / replicate)		
	after 6 hrs	after 24 hrs	after 48 hrs
<b>Without additive</b>	88	88	88
<b>With NEBOL (Fog Additive)</b>			
Amount: 2010 ml of diluted (2.5 %) product + 200 ml NEBOL / 670 m³	100	100	100

[Mean of two replicates (range) with exposure time inside the treated room: 6 hrs. temperature: 23-25°C rel. humidity: 35-40%]



## COMPANY PROFILE

In general it can be said, that the fogging qualities of water are not as good as those of oil. One reason why, in many countries, it is still uncommon to use water based insecticides with thermal fog generators. The advantages, such as the lower environmental impact and cost, should however not be underestimated. It is important to mention that nearly all IGEBA thermal foggers can be used for oil and water based formulations by making only small modifications. Moreover, there are certain additives that can improve its fogging quality.

One option to enhance the fogging qualities of water as a carrier liquid is the use of NEBOL fog enhancer. NEBOL stabilises the produced droplets and creates a narrower droplet spectrum. This ensures a more even distribution of the droplets and extends the contact time with the vector.

Looking at the costs and efficacy of space treatment, the impact of temperature on the active ingredient is a further issue that should be taken into account. The results of a study carried out by IGEBA show that using some competitor thermal foggers, can have a negative effect on the active ingredient.

In 2012, IGEBA carried out tests with two different foggers applying 4 different active ingredients



*IGEBA U40 HD M - Adjustable spray heads allow variation of fogging direction. In some situations, the nozzle nearest the kerb can be pointing down towards any water or insects in the drains etc and others vary in angle upwards. The aim is to widen the cloud of droplets that being so small are distributed by any air movement (cross wind ideal).*

(tetramethrin, fenitrothion, deltamethrin, and cypermethrin); the aim was to measure the concentration of the fogging solution before and after fogging. The fogger with a temperature of more than 1000°C at the point of injection was burning between 11 and 31% of the active ingredient. On the IGEBA TF-35 it was only 0 to 5%.

The special design of the IGEBA foggers considerably reduces the risk of fire and thus minimises the effect of the heat on the active ingredient.

When a fogger is burning up to 30% of the active ingredient it is not only a cost factor but also an increased risk of resistances, as the chemical is not applied at the recommended concentration.

### **A new challenge for the future**

IGEBA has been present on the market for over 30 years. Although the success is unbroken since the beginning, there are new challenges that the company has to face. A new generation with over 15 years of experience has taken over responsibility, backed by close contact to the founders and senior company experts. This ensures that knowledge is not only kept alive but enriched by the innovation and the ideas of young and dynamic professionals.

Sustaining the investment in human resources as well the manufacturing processes is and will remain one of the main responsibilities of IGEBA which will in turn continue to contribute to the delivery of excellent quality and service levels that customers around the world are used to. This is the guiding principle: in being and remaining the first choice.

### **References:**

- 1,2 Source: Communicable Disease Control – Prevention and Eradication. WHO Pesticide Evaluation Scheme WHOPES WHO/CDS/WHOPES/GCDPP/2003.5



*Fogging water-based solution with IGEBA TF-W35*

# *First choice fogging equipment*

## ULV Aerosol Generators

### SPACE TREATMENT

IGEBA ULV aerosol generators produce aerosol droplets, using highly concentrated formulations. The rate of application depends on the active ingredient and the formulation used, but usually the volume ranges from 0.5 - 4 l/ha. If mounted on a vehicle the forward speed of the vehicle should not exceed 10 km/h.

EC (Emulsion concentrates) and ULV formulations can be diluted with diesel, kerosene or water.



## Thermal Fog Generators

IGEBA thermal fog generators produce a dense insecticide fog. This takes immediate action with the right active ingredient and destroys both flying and crawling insects. In suitable weather conditions the fog shows effect in a very short time.

Due to the little application quantity, the environmental contamination is minimised, without influencing the high efficiency of the used solution. This enables an immediate control over insect and nuisance. IGEBA thermal fog generators can be used, both with oil and water based solutions.



***Thermal Fog Generators***  
***ULV Aerosol Generators***

For more information visit us on [www.igeba.de](http://www.igeba.de)





## Technology meets combination

### Design features:

- Adjustable spray nozzle
- Low noise level ideal for treatments in residential areas, resorts etc.
- Vehicle mountable, i.e. ATVs, golf carts, pick-ups etc.
- More than 2 h working capacity without fuel refilling
- Easy cleaning and low maintenance effort
- Compact design: frame completely made of stainless steel
- In vector control up to 40 ha. without refilling
- Quick coupling system for fast change of 20 l solution tank (PE-HD)
- Operating pressure control by built-in manometer
- 2,6 KW (3,5 HP) Briggs & Stratton 4-stroke engine

## NEW

### Optional transport device

- Fast change of the application position
- Comfortable and ergonomic handling by one operator



### Upgrade your hose extension with the IGEBA Fog Control unit

- Start / Stop fogging with the integrated trigger
- Suitable for all IGEBA hose extension



### Optional remote control (5 m)

- Fogging ON / OFF
- Motor OFF
- Control your application from the driver's cab  
(External 12 V DC power supply necessary)



### Optional hose extension (5 m)

- Amplify your application area



## U 5 M - ULV smart fogging!

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